

Concept of Fatty liver and its management in Ayurveda

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REVIEW ARTICLE

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ABSTRACT

Fatty liver disease is a most common liver disease affecting a wide range of population worldwide. It is caused due to excessive fat accumulation in liver cells resulting in inflammation in liver. There are various symptoms such as confusion, fatigue, weakness etc. Over-eating is the major lifestyle factor causing fatty liver disease. Alcoholic intake results in alcoholic fatty liver disease *Ajirna* (indigestion), *Sthaulya* (obesity) and *Prameha* (diabetes mellitus) which occurs due to the vitiation of *Annavaha*, *Rasavaha* and *Medovaha* *Srotas* acts as *Nidanarthakara Rogas* (diseases which cause another diseases) which may result in the manifestation of non-alcoholic fatty liver. According to Ayurvedic texts, *Panchkarma* (*Virechana*) and herbs like *Bhumiamalaki* and *Guduchi* etc. acts a hepatoprotective and improves the functioning of liver.

Keywords: Fatty liver disease, *Sthaulya*, *Prameha*, *Roga*, *Virechana*, *Guduchi*.

Introduction

Hepato biliary diseases are the serious ailments affecting population worldwide. Hepatobiliary disease includes a heterogeneous group of diseases of the liver and biliary system caused by viral, bacterial, and parasitic infections, alcohol consumption, poor nutrition, and metabolic disorders. The liver is a well-known organ for Ayurveda. In Vedas, liver is mentioned by “*Yakna*” word. (1)

Yakrit word is derived from Sanskrit word *Yat* i.e., conversion and *Krit* means to do. *Yakrit* is regarded as a main organ that executes all key metabolic tasks, and its disruption can result in a variety of *Yakrit vikaras*. *Yakrit* functions are altered when *Pitta Prakopa nidanas* are used frequently and excessively. *Yakrit vikaras* (liver disorders) are fully explained in various *Samhitas*.

Liver is the largest gland in the body, performing metabolism of all the nutritional substances. It is the commonest site for accumulation of fat because it

plays central role in fat metabolism. (2) Fatty alteration might be moderate and reversible, or severe and cause irreversible cell harm and death, depending on the source and quantity of build-up. Fatty Liver is caused by disturbances in lipid metabolism in the liver caused by a variety of etiological causes. Fatty liver is a reversible disorder in which a big quantity of fat builds up in the liver cells due to steatosis. Fatty liver is a condition that occurs when the fat content of the liver surpasses 5% of the total weight of the liver or when more than 30% of the hepatic cells in a liver lobule have fat deposits. (3)

In Ayurveda, *Yakrit dalludara* refers to an increase in the size of the liver (*Yakrit vridhi*). *Kaphaja Yakrit dalludara* occurs when *Kapha dosha* increases, resulting in a rise in the size of the liver. The *Meda* inside the *Yakrit* is then increased, resulting in *Medaja Yakrit dalludara*. (41) NAFLD (non-alcoholic fatty liver disease), also known as hepatic steatosis and *Kaphaja yakrit dalludara* in Ayurveda, is

characterised by fat deposition in the liver in the absence of heavy alcohol consumption. It is a worldwide public health problem caused by dietary hyper nutrition, which leads to obesity and type II diabetes, and is linked to smoking, hypertension, and dyslipidaemia. Non-alcoholic fatty liver disease is an umbrella term for a histological spectrum ranging from simple steatosis, defined as a concentration of hepatic triglycerides greater than five percent of liver weight. The aetiology of fatty liver is divided into two types as mentioned in **figure 1**. The first group includes circumstances in

which there is an excess of fat on the body, putting additional strain on the liver's ability to metabolise fat. The second group includes liver cell damage, in which fat cannot be digested owing to harm to the liver cells.

The prevalence of Non-alcoholic fatty liver disease is 9-40% in Asia. Recent studies from the Indian subcontinent recorded a prevalence of 9-32% in the general population⁴. Insulin resistance, poor glycaemic control, and altered lipid metabolism have all been proposed as contributing factors to the molecular pathogenesis of disease. (5)

Conditions with excess fat	Liver cell damage
<ul style="list-style-type: none"> • Diabetes mellitus • Obesity • Hyperlipidaemia 	<ul style="list-style-type: none"> • Alcoholic Liver Disease • Starvation • Protein calorie malnutrition • Chronic illness (e.g. TB) • Acute fatty liver in late pregnancy • Hypoxia (Anemia, cardiac failure) • Hepatotoxins (Carbon tetrachloride, chloroform) • Drug induced liver cell injury

Figure 1. Etiology of fatty liver

Etio-pathogenesis

The *Ranjaka pitta*, which turns *Apya Rasa Dhatu* into *Rakta Dhatu*, is based in *Yakrit*. It is also associated to *Raktavahi* and *Mamsavahi Dhamani* and is the *Mulasthan* (place of origin) of *Raktavahasrotas*. *Yakrit* is a significant *Koshthanga* that is closely linked to the *Rasa*, *Rakta*, and *Mamsa Dhatus* and plays a significant part in the *Dhatu Parinama*. (6) The key etiological causes of fatty liver include a high-fat diet, junk food, soft drinks, sedentary lifestyle, metabolic

syndrome (obesity, diabetes mellitus, dyslipidemia), medicines (corticosteroids, tetracyclin), etc. **Figure 1** illustrates the aetiology of fatty liver disease. The *Dushti* of *Annavaha*, *Udakavaha*, *Rasavaha*, *Raktavaha*, *Medovaha*, etc. is caused by a high-fat diet, soft beverages, and a sedentary lifestyle, according to Ayurvedic theory. *Nidanarthakara Rogas* are *Ajirna* (indigestion), *Sthaulya* (obesity), and *Prameha* (diabetes mellitus) that result

from the vitiation of the *Annavaha*, *Rasavaha*, and *Medovaha Srotas*. (7)

Fatty liver disease like *Sthaulya*, is a *Santarpanajanya Vyadhi* (disease caused by overeating) with *Nidana* (aetiology) and *Samprapti* (pathogenesis). *Agnivikruti* (Vitiation of the digestive system) causes the creation of *Apakva Anna Rasa* (Improperly produced digestive end product), which causes the vitiation of *Kaphadosha* and uneven formation and deposit of *Meda* (fat tissue) in *Yakrit*. Fatty Liver is the medical term for this ailment. *Srotorodha* (channel obstruction) is caused by vitiated *Kapha* and *Meda*, which promotes *Vata*. *Agnivikruti* is caused by vitiated *Vata*, and the cycle repeats. Hepatocytes undergo inflammatory alterations when *Pitta* is implicated in the pathophysiology, and the illness develops to the next stage, NASH. When *Vata* enters the picture, fibrosis develops, and the condition may advance to its extremes.

Hepatocytes experience inflammatory alterations when *Pitta* is implicated in the pathophysiology, and the illness develops to the next stage. When *Vata* enters the picture, fibrosis develops, which can lead to cirrhosis, ascites, and hepatocellular carcinoma, as well as other metabolic problems. Vitiation of *Samanavayu*, *Apanavayu*, *Pachakapitta*, *Ranjakapitta*, *Kledaka kapha*, *Rasa Rakta Medo dhatu*, and *Pureesha* are major variables involved in the etiopathogenesis of fatty liver. (8) *Srotas* associated in the aetiology and expression of fatty liver are *Annavaha*, *Udakavaha*, *Rasavaha*, *Raktavaha*, *Medovaha*, and *Pureeshavaha*.

Predisposing factors

- Type 2 diabetes and prediabetes
- Obesity
- Middle aged or older (although children can also get it)
- High levels of fats in the blood, such as cholesterol and triglycerides
- High blood pressure

- Certain drugs, such as corticosteroids and some cancer drugs
- Certain metabolic disorders, including metabolic syndrome
- Rapid weight loss

Clinical sign and symptoms

Patients with fatty liver disease manifest with abdominal heaviness and distention, increased or reduced hunger, constipation or diarrhoea, lethargy, and burp in the early stages. This situation is certainly comparable to *Ajirna*. (9) The presentation in obese people is quite similar to that of *Sthaulya*. When fatty liver progresses to the next stage, which resembles to *Amlapitta* (Gastro-esophageal Reflex Disease), in which patients experience sour eructation, chest and abdominal burning, abdominal distention, tastelessness, and loose stools. Systemic characteristics suggestive of more significant liver illnesses such as *Pandu* (Anemia, Fatigue, Altered Sensorium) (10), *Kamala* (yellowish sclera, skin, and urine), and *Raktapitta* (haematemesis) will become increasingly visible as the condition develops to Fibrosis and Cirrhosis. Finally, it manifests as one of the *Ashtamahagada's* eight primary ailments, namely *Udara* (Ascites); *Yakriddalyudara* is more prominent

Management

Dietary restriction, physical exercise and weight reduction form the first line of treatment. There is need of alternative treatment modalities which are safe and cost-effective. Ayurveda has immense potential in the management of fatty liver disease. Things to keep in mind while treating fatty liver are *Agnivikruti*, vitiation of *Kapha* and *Meda* at the *Mula Sthana* of *Raktavaha Srotasa*, *Srotorodha* and vitiation of *Vata*. *Agnideepana* (stimulation of digestive fire), *Rookshana* (dryness therapy), *Srotosodhana* (removal of blockage of channels), pacification of *Kapha*, *Meda* and *Vata* should be the first

line of treatment in the management of Fatty Liver. Here, the treatment principle adopted is almost similar to that of Sthaulya. (11) When the fatty liver reaches the next stage and the Dhatus get engaged,

therapy should focus on the purification of *Rasa* and *Rakta*, as well as *Yakritshothahara* (relieves hepatic inflammation).

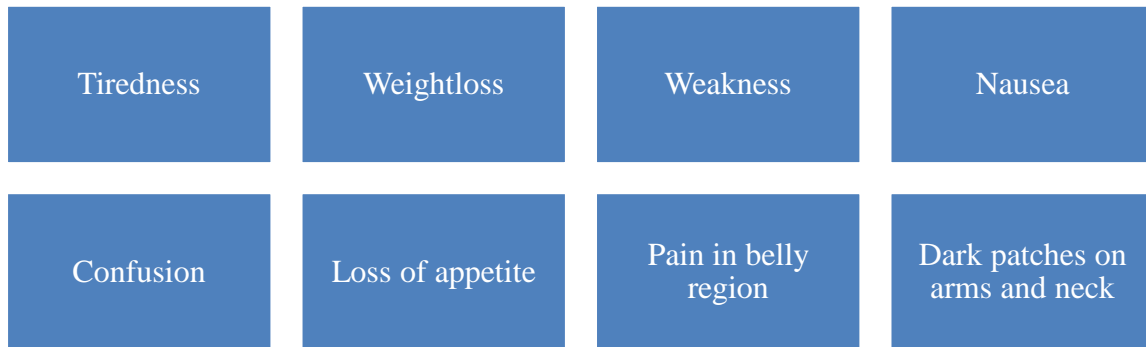


Figure 2. Some symptoms of Fatty liver disease

The careful use of the four treatment limbs, namely *Samsodhana*, *Samshamana*, *Ahara*, would aid in the reversal of fatty liver abnormalities and the avoidance of additional problems. In cases of liver problems, *Virechana* is the best *Shodhana Karma*. After undergoing *Virechana* therapy, patient experiences lightness in the body and improves the appetite. It is helpful in elimination excessive *Pitta dosha* alongwith *Vata* and *Kapha dosha*. Excessive *Dosha* buildup and *Srotorodha* are both indications. It has the properties of *Agnideepana* and *Srotoshodhana*. For this reason, a variety of *Churna*, *Taila*, *Ghrita*, and *Avaleha* concoctions listed in classical writings and accessible in marketplaces are commonly employed. *Patoladi*, *Hapushadi*, etc. *Patoladi*, *Hapushadi*, *Narayana*, *Avipatti*, *Erandataila*, *Trivrit Avaleha*, *Misraka sneha*, and *Haritakyadi ghrita* are some of the *Churnas* that may be employed for this purpose. (12)

Vamana procedure is also helpful in reducing weight, total cholesterol levels and triglyceride levels. This therapy improves liver function by reducing the urea levels and serum creatinine levels.

Single herbs like *Sharapunkha*, *Bhoomiamalaki*, *Katuki*, *Guduchi*, *Haritaki*, *Vasa*, and *Pippali* can be utilised safely in *Shamana chikitsa* for the successful control. All of these medications shown hepato-protective property. *Kashaya* (*Vasaguduchyadi*, *Phalatrikadi*, *Drakshadi*, *Patola Katurohinyadi*), *Arishta* (*Sudarshanaarishta*, *Rohitakarishtha*, *Pippalyasava*), *Churna* (*Hinguvachadi*, *Vaiswanara*), etc.

Conclusion

Alteration in the human-environment interaction is a key cause of all illnesses, including metabolic syndrome, which is mostly caused by poor nutrition and lifestyle choices. Fatty liver disease is an increasing condition that may progress to end stage liver disease. It has potential to progress to cirrhosis and liver failure. No established pharmacological treatment is available for fatty liver disease in modern medicine. Its treatment is still evolving, with no single drug clearly shown to be effective. Hence, there is a search for alternative treatment modalities in other systems of medicine, which is safe and cost-effective. As a result, nutrition and lifestyle have a significant role in the

development, prevention, and treatment of fatty liver disease. The diet should be changed according to *Acharya Charaka's* "Eight Rules of Eating." *Yoga* and *Pranayama* may be incorporated into one's everyday practise to improve outcomes.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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